infections, and thus reduce the rate of late complications (Ref.II-V). Such surgery can and sould be performed by skilled non-surgeons using simple equipment under field conditions.

- **qualified evacuation up to second-line**

Evacuation should not be performed unless the patient is stable (ABC-support given). The evacuation should be assisted by staff able to perform ABC- and pain-killing therapy during the evacuation.

- **the Afghanistan setting**

In Afghanistan/Pakistan high-standard second-line hospitals are at hand (ICRC). Due to extensive use of weapons with high damage potential (Ref.I), and due to protracted evacuation on bad roads/no roads, **particular emphasis should be given to forward qualified medical care.**

Afghanistan's mine problem is well documented; mine injuries given qualified care generally carry low mortality risk; with insufficient forward care, mortality is, however, significant due to late complications.

4. *Forward Emergency Medical Care in Eastern Afghanistan - present Lacks and Future needs.*

- concerning lacks

In Eastern Afghanistan the single most obvious weakness is a close-to-total lack of coordination between NGO with a said responsibility for war-casuality management; millions of Rs are invested for years in ambulances, clinics and medical staff education - without head planning. Some of the consequences are listed below:

- Undoubtedly there exsists **some** qualified staff, **some** clinics working, **some** ambulance service etc. along the evacuations routes from the main fighting fields. However, those resources are generally unknown for the Echelon-planner. ACBAR[14] has recently completed a survey mapping the NGO resources inside Afghanistan, however that map does not correspond to reality, at least not for Ningrahar, Logar and Paktia (Kabul-, Khost,- and Jalalabad evacuation routes)[15]

- Compared to the investment costs, the profit is poor: Certain NGO' have particular resources, some in ambulance service, some in staff-education, some in surgery, some in administration and planning; thus specialization within a general head plan would improve **each part** of the Medical Echelon. Instead existing and valuable resources remain partly useless: Surgical clinics at Jalalabad - with no ambulance service; operating theatres in Miramshah - without qualified staff; well educated field working paramedics in Paktia and Logar -without the equipment and medicines needed; expensive ambulances (ICRC, Afghan Aid, Arab) - without simple equipment needed for qualified evacuation; well localized ambulance posts (ICRC, Arab, mujahedin) - without medical staff able to perform ABC-support; qualified and well equipped surgical teams sent for field duty (Afghan Interrim Government at Sarobi) - without ambulance service or attachment to existing local medical echelons.[16]

Further:
The quality of **project implementation** from the NGO side seems inadequate, at least in the medical field; more than one

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[14] Coordinating body for foreign NGOs in Peshawar.

[15] Personal field studies 1990.

[16] The list is not complete, examples may be multiplied.

"clinic" or "field medical unit" in the NGO maps are only found on that map, and medical items send for that "clinic" is mainly found in private use or black markets outside the border[17].

Further:
To organize and maintain an effective war-time medical echelon, is a challenging task. Between international experts is recognized that particular expertice is needed in echelon implementation, particulary **role of paramedics** and the **importance of forward surgery** is stressed[18] (Ref.II,III,V). However, this knowledge seems not yet to have penetrated the Afghan scenario; still the organizations responsible for casuality evacuation (ICRC, Afghan Aid and AIG) stress a **rapid** evacuation from inside Afghanistan, and the importance of high standard **second-line** hospitals, leaving the forward medical care of poor standard [19] (also see p. 21 regarding paramedic education). The results are painfull, devasting evacuations and lives and limbs unnecessary lost. The outspoken policy of ICRC not to provide advanced ABC-support or forward surgery inside Afghanistan (article 2 above), is just one manifestation of a policy not in accordance with modern principles of casuality management [20].

Lastly:
One can see a general tendency among NGO's and Western funders to put less emphasise on relief for Afghan war-wounded. This is, however, not in accordance with facts and figures showing an unchanged high total number of war-casualities during 1989-90. It is so that the military operations now are more

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[17] During personal field studies 1990 just one out of seven "map clinics" was verified south and west of Jalalabad; three out of seven was verified at Khost.

[18] Skilled western armies (IDF, US, British) as well as experienced resistance organizations (Eritrean, Palestinian) educate and equip their military paramedics to perform advanced forward therapy; the importance of rapid primary surgery is emphazised, either by air evacuation or localizing first-line mobile clinics close to the combat area.

[19] "Medicines Sans Frontieres" did apply sound and modern concepts of casuality management. Since 1990 they are,however, not present in Afghanistan.

[20] Regarding this priority, ICRC is critizised in Scandinavian press papers by surgeons having done their duty at the Peshawar ICRC hospital.

concentrated at the main Afghan cities; this has, however, in many cases made evacuation of war-wounded both prolonged and more difficult. It is also so that the military fighting is less intensive in many areas; however, the general distribution of types of injuries has also changed due to repatriation of Afghans into mine areas, and more sophisticated weapons now in use by the regime[21]. Neither the total number of casualities nor the number of serious injuries is thus reduced.

- concerning needs

Due to Afghanistan's mine problem, qualified forward clinics and high standard echelons for evacuation is needed, and increasingly so when repatriation of Afghan refugees and re-cultivation of Afghan lands becomes effective. This is beyond doubt, and a single sufficient reason to improve the war-casuality management inside Afghanistan and maintain that management for years.

The future military setting is not predictable. By november 1990 the main mujahedin parties and commanders seem unanimous that increased military pressure should be put on regime strong-holds like Khandahar, Gardez, Pul-i-Alam and the Kabul-Jalalabad highway; that clean-up manouvres should be done in Logar; pressure should be maintained against Kabul, Herat, Khost and Jalalabad. Some parties and commanders claim that The Battle of Kabul should start soon.

The supply to the Kabul-regime of Soviet arms of high quality[22] and quantity remains unchanged (Ref.VIII).

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[21] See note 22 below.

[22] Several reliable Afghan sources claim that medium-range ground-to-ground cluster rockets are now used by the regime. That would be a cluster-weapon not used in Afghanistan till now. During 1989 the use by the regime of new and devasting high-energy mortar grenades was documented (surgical team, SCA).

So far we can safely recommend that

- for the near future, the general level of relief work for Afghan war-casualities should not be reduced. Rather should it be improved by concentrating upon forward qualified management inside Afghanistan; and upon planning and co-operation between the NGO's and Afghan organizations responsible.

- exclusion of "map-clinics" and relief bound for spesific elements of the medical echelon should be incouraged in order to improve end-results with less total costs. Target groups for such specific investments should be medical units with de facto good results, units localized along the evacuation routes from the main fighting grounds in Afghanistan.

- improvement of forward field medical units of a certain surgical standard should have a general priority.

- the war-medical network should gradually be transferred into the hands of Afghans, run by Afghan staff and head by Afghan experts, as long as their quality and medical results are proved; only a genuine Afghan war-medical service can keep permanently close to the site of injury, can handle the future increasing number of mine injuries - and be a core around which the future civilian Afghan trauma-medical network can be build.

5. *Evaluation of the MMC-project.*

5.1. The History and Organization of MMC

- background

Upon initiative from Medicines Sans Frontières (MSF), a forward surgical field mission named "Mujahed Medical Center" was arranged at Jalalabad in march 1989, headed by a senior Afghan doctor[23]. Assisted by a Norwegian surgical team during may and june 1989, that mission was developed into a mobile surgical clinic giving advanced ABC-support and performing primary surgery for war-wounded civilian and mujahedins[24]. During its first months, MMC was run as a joint mission between several NGO's in Peshawar: Ambulance support from Afghan Aid and AVICEN; medical logistics from NCA, MSF and the Sweedish Committee for Afghanistan; financial support mainly from NCA.

Thanks to MMC's outspoken neutrality regarding parties and commanders, the MMC clinics at Jalalabad has close cooperation with all mujahedin units present in the combat area. The majority of injured is carried to MMC by mujahedin cars and by MMC ambulances communicating with mujahedin groups in the field. This close cooperation allow MMC to avoid unnecessary delay of forward medical care, in spite of heavy military pressure in the operating field. On the evacuation side, MMC had and has a smooth- functioning cooperation with ICRC posts along the Jalalabad-Peshawar highway.

Partly due to funding- and organizational problems, partly due to a decreased interest in emergency medical missions in general, some of the NGO's initially active in MMC has withdrwn their support from the project[25]. On the other hand the contributions from NCA, Afghan Aid and ICRC is somewhat extended, and the effective medical capacity of MMC is in fact increased during 1990. By NCA assistance, MMC now runs one own ambulance and one mobile field clinic (truck) in addition to the ambulance support from Afghan Aid.

In 1989 MMC established a field surgical clinic in Paktia in order to assist the evacuation of war-wounded from the eastern fighting grounds around Khost city. In winter 1989-90 one ambulance (Afghan Aid run) was lost in that area due to hijacking, and the MMC-mission at Khost was closed down. Retrospective, one can see that the MMC-mission East of Khost was not based upon sufficient pre-operational field studies. The extensions of MMC now being prepared, are consequently more careful, forerun by sounder field studies and concentrated along evacuation routes where the situation is more stable.

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[23] Dr. Assadullah Reha is still director of MMC.

[24] See note p. 2.

[25] AVICEN, MSF and the Sweedish Committe.

- organization

At present MMC is run by an effective field staff of 20 members, all Afghans, including 4 doctors and 8 nurses/paramedics. The staff is carefully selected based upon their practical medical skills, experience in management of war-casualities - as well as psychological features, the field duty being a strenous one. During 20 months of function, there has been a field-staff turn-over of 50%; this is satisfactory when difficult working conditions are taken into account. It leaves MMC with a core of medical staff with out-standing field-experience and qualifications[26]. Training course in advanced forward surgery has further improved staff quality.

MMC stick to a concept of light administration; from a Peshawar base, the administration stay in close contact with the field staff as well as other NGOs and experts working in the emergency medical sector[27]. The MMC administration is under development; one assistant medical director will be appointed to fullfill the needs for field studies prior to future extensions of MMC; steps are taken to develop the administrative competency of the staff.

The field apparatus of MMC is, by necessity, mobile and flexible: During 1990 MMC, for a periode, run three forward clinics at the Jalalabad side, including one clinic on the north-eastern front; due to changes in the military setting with decreasing casuality load on that front, the eastern clinic was closed down; at present MMC runs two mobile clinics at Jalalabad:

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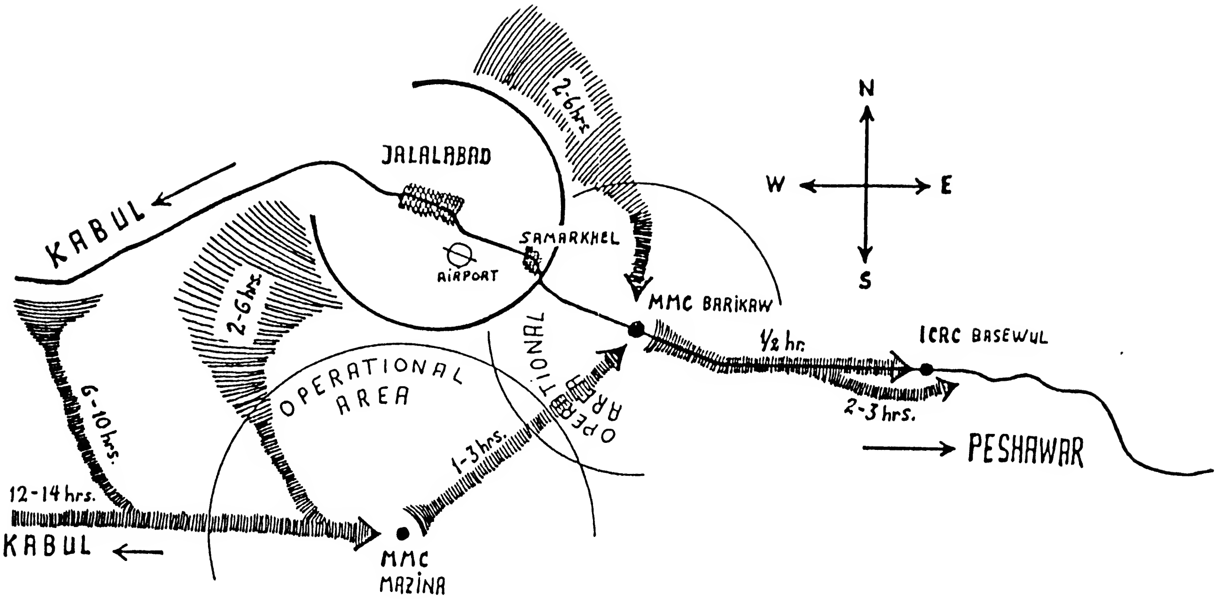
[26] This is verified by systematic and comprehensive tests of the medical staff october 1990.

[27] MMC seems to has got a certain renommé, senior Afghan doctors from other NGOs and Afghan institutions now show their interest in future cooperation with MMC.



The Mazina and Barrikaw clinics both have 1 ambulance; operating in the field, they carry medical equipment necessary for advanced ABC-support, and are manned with both driver and paramedic. Their operating range is marked in the map above.

The majority of casualities still arrive at the MMC clinics on mujahedin cars or private cars, that is - they arrive without any prior ABC-support. Particulary this is so for casualities from the fighting grounds west of Jalalabad, from along the Kabul-Jalalabad highway and the Kabul area; after a devasting evacuation on roads of low standard, their general state at arrival is poor. Casualities arriving at the Barrikaw clinic, has a mean time delay from time of injury up to arrival of approximately 2 hours.

The MMC clinics have no bed departments; after ABC-stabilization and primary surgery, major and moderate injuries are further evacuated to the ICRC post at Basewul, or directly to Peshawar (the most serious injuries); minor injuries are treated as O.P.D. patients at MMC or kept for observation at mujahedin bases or in villages nearby.

The **total real time** of evacuation from MMC-Barrikaw up to definitive surgery at Peshawar is 4-8 hours, technical- and hospital-delay included.

5.2. War-injuries and Results

- casuality load

During 20 months, from march 1989 up to october 1990, the MMC clinics at Jalalabad managed a total of 3320 war-time injured.

1860 injuries of serious/moderate degree were evacuated for further surgery at Peshawar after stabilization and primary surgery at MMC, that makes a monthly mean of 165 casualities, varying from 283 (may 1989) to 25 (july 1990).

250 injured were dead at arrival or during their stay at MMC; 1210 casualities had light injuries and were discharged for further O.P.D. management without evacuation. An additional 6840 patients were treated for non-war related reasons.

25% of the war-casualities were civilians; among the civilian casualities, 40% were children less than 15 years of age.

The mortality rate (casualities dead before and during MMC-stay) is reduced from 40% in march 1989, to 10% in may-june 1989, and further to a mean of 6% during 1990.

- distribution of injuries

Among the 1860 casualities evacuated for further surgery, such was the regional distribution of injuries:

Head injuries	13%
Chest injuries	7%
Abdominal injuries	7%
Traumatic limb amputations	7%
Other major limb injury	27%
Multiple injuries	39%

During triage[28], the casualities were such classified:

Group 1	16%
Group 2	37%
Group 3	47%

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[28] Classification of war-casualities into three groups regarding their priority for live-saving procedures and further evacuation: Need urgent surgery on vital life- or limb conditions (group 1); need surgery but can wait (group 2); patients with minor injuries, O.P.D. cases and casualities dying or already dead (group 3).

- injury management[29]

ABC-support at MMC includes chest tube application with manual sucction; tracheal intubation is not performed at MMC, assisted ventilation is done by bagging upon mouth mask and pharynx tube. Volume therapy includes cut-down, and bleeding artery control by ad hoc clamping and ligature. ABC-support includes pain-killing, i.v.morphica and low-dose ketamine is used on wide indications.

Surgical debridement is done in the majority of cases; under direct military preassure upon the clinic area, in some group 1-cases needing urgent definitive surgery, and in some injuries arriving at MMC-Barrikaw with a minimum of delay - the surgical debridement is left for the Peshawar hospitals. All war-wounds are left open with wide dependant drainage.

Low-dose i.v. ketamine is the general procedure for anaesthesia; there was no reports of serious side-effects during anaesthesia. In doses of 0,5 mg/kg body weight, ketamine does neither interfer with further immediate evacuation nor with surgery at second-line hospitals.

All casualities are given prophylactic antibiotics in one single high-dose injection; inj. metronidazol is given to all abdominal injuries; no anti-tetanus prophylaxis is given other than debridement, drainage and penicilline.

- cost/profit estimates

With activity as present, the running costs for MMC is 1 490 000 Rs/year, or 425 000 NKr; that makes a cost per managed war-injured of 970 Rs, or 275 Nkr - field evacuation, primary surgery and further evacuation included.

All patients included (that is non-war related cases added, O.P.D. patients with free medicine included), the actual cost per patient is 250 Rs, or 70 Nkr.

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[29] For details, see appendix: "Forward War-time Surgery - Casuality management by MMC at Jalalabad, Afghanistan".

"MUJAHED EMERGENY MEDICAL CENTER"

- AN EVALUATION.

A Study of Forward Management of War-injured
in Eastern Afghanistan 1991, by dr. Hans Husum, M.d.

. . . .

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1. Objectives of the actual Study.

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3. The Echelon of Medical Care: General Principles for Management of War-injured.

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7. References.

APPENDIX

Forward War-time Surgery
- Casuality Management by MMC at Jalalabad, Afghanistan.

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5.3. Discussion

- effectivity

The effectivity of the MMC staff and organization is satisfactory; compared with references from the international litterature of traumatology, the casuality load managed by the MMC clinics are remarkable[30]. For comparison an active surgical operating department in a Norwegian medium sized hospital has a capacity of appr. 3000 operations per year.

The running costs per MMC patient is low, and as predicted in 1989 [31]. Emergency medicine is traditionally expensive compared to other diciplines, making the low MMC patient-costs impressive.

- medical standards and staff education

The general standard of casuality mangement at MMC is satisfactory, as evaluated against common international standards for forward field surgery. Particulary the MMC paramedics demonstrate good standard in advanced ABC-support. The quality of performance does naturally vary somewhat between the MMC medical teams at duty, with the consequence that a few extensive high energy injuries does not get the agressive primary surgery they needed. However, one have to consider that the casuality load at intervals may be very high (>10 serious cases arriving during 1 hour); also that hitherto unknown weapons are introduced by the regime, weapons with unexpected high damaging potential.

For the future MMC should stick to the policy of careful selection of medical staff before appointment; continue to stress the importance of prior experience in war-time casuality management; and give continuous training courses and medical tests for the junior staff. For that reason the MMC administration has now delivered a booklet[32] with detailed medical procedures valid for the MMC clinics and the MMC ambulance staff in the field; with this booklet follows a comprehensive medical test for evaluation of the field staff.

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[30] It is comparable to the load of patients reported from the Korean war and from the mobile US army hospitals during the Vietnam war, see ref.III.

[31] "Konsulent-rapport vedrørende MMC-klinikkene i Afghanistan...", NCA 1989. The report predicts a cost per patient of 265 Nkr (930 Rs), non-trauma patients not included

[32] Farsi and English edition, available at the MMC office, Peshawar.

Concerning the surgical standard, some measures should be considered for the near future:

- Till now the MMC clinics are run without electricity, head-lights being the sole light source during surgery at night. The reason has been to maintain "light" clinics with high mobility. One minor diesel-run generator for each clinic would, without problems, supply two el-operation lamps and cautery unit, thus improving conditions for surgery considerably without reducing the clinic mobility significantly.

- Staff standard should be improved by particular education in ballistics, and in judgement of damaging potential of different conventional weapons. Already one training course is this matter is run for the staff; also the trauma journal/patient slips are revised and specified to catch the detailed weapon history of each patient and his classification in the MMC triage.

- Fasciotomy should be used on wide indications in war-time limb injuries; specified indications are included in the new MMC procedures to encourage the use of fasciotomies during forward surgery.

- amateurs or professionals ?

The weakest part of the echelon of war-time medical care use to be the forward part - that is, the ABC-support in the combat field and up to the forward clinics.

So also with MMC at Jalalabad: The time-delay from injury up to clinic arrival is reduced during 1990 due to the well localized Mazina clinic, but this is only valid for casualities from the southern and western combat fields. Still the mean time-delay before clinic arrival is above 2 hours; and still the majority of injured arrive without prior ABC-support. Beyond doubt, this is the single factor contributing most to the general rate of death and medical complications among war-casualities (Ref.VII). This is reflected in the **under-representation at MMC of chest- and abdominal injuries** compared with results from other late regional wars.

For years Peshawar-based NGOs have run first aid training courses for members of mujahedin groups; their intention is obviously to improve the front-line ABC-management by educating military "medical men" along lines well nown in modern western armies. However, the training courses suffer from a conservative attitude from NGO side: The procedures taught for A-(airway) and B-(breathing) support are insufficient, and the volume therapy of symbolic value. Further, the mujahedin "medical men" are just supplied with bandages and scissors, equipment necessary for ABC-support or pain-killers are not thrusted them. Lastly, there is generally a leisured attitude towards modern and agressive casuality management among mujahedins.

The de facto effect in the field of these training courses are thus not impressive. It si our conclusion that both investors and casualities would profit more if priority were given to professional forward medical units.

- **organizational improvements**

During 1990 MMC has equipped the paramedics assisting the field ambulances with ABC-sets, making them able to perform advanced ABC-support at the **site of injury**. But full profit from this measure is only achieved by **better utilization of the ambulances in the field**: A proper system for wire-less field commuunication - between clinics and ambulances, between ambulances, and between mujahedin units and the clinics is mandatory. Preferably such a communication system should have a capacity (base station/stations) good enough to reach eventual extensions of MMC towards west (Jegdalek, Sarobi, Kabul).

At present, the MMC administration plans for an extension of the MMC echelon towards west; a forward clinic in the Jegdalek area would imply reduced time-delay for casualilties from along the Jalalabad-Kabul highway; also it would improve the evacuation from the eastern/southern outskirts of Kabul. This extension may well be done with the present MMC field staff manning the truck-clinic, and would imply minimal extra running costs.

Full utilization of the resouces of MMC would imply **two ambulances attached to each clinic**, one abmulance working in the field at any time, one ambulance kept for emergencies and evacuation towards second-line. The cooperation from Afghan Aid ambulances in the MMC network is essential, and should continue; it allows the present MMC clinics to have one ambulance each. However, that ambulance cannot be send for the combat field. Our conclusion is therefore: MMC at Jalalabad should have two new ambulances in order to utilize its present capacity - and in order to improve the very forward casuality management.

6. *Recommendations*

- general

Relief bound for war-casuality management should be maintained on the present level for the near future; there are no indications that the number of war-casualities in Eastern Afghanistan is decreasing; rather, one should expect an increasing number of mine injuries with repatriation of Afghan refugees.

That relief should concentrate on improvement of forward competent surgical service along the evacuation routes from the main Afghan cities.

That relief should exclusively be bound for projects with documented results.

Planning for The future Afghan emergency-medical organization should be initiated.

- concerning MMC

MMC has documented its efficiacy, and the present support from NCA should be extended for 1991.

In 1991 one should concentrate on escalation of MMC's technical resources in order to increase the utilization of the present capacity; better ambulance service, el-supply for the clinics and better field-communication has priority.

NCA should offer expert consultant service for MMC during 1991; that service should concentrate on further staff education and assistance in planning future MMC extensions.

An independant Afghan run MMC by the end of 1991 is a realistic objective.

(For details - see pp.14 and 20-23.)

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1. *Objectives of the actual Study*

MMC was developed in March 1989 to assist the evacuation of casualities from the battle of Jalalabad. Initially MMC was run as a cooperation between several European NGO's; the Jalalabad battle, initially thought to be of rather short duration, has turned into a protracted, yet intensive state of war with continuous heavy casualities for more than 20 months. Accordingly MMC, initially planned as a short-time mission, has developed into an advanced and well experienced center for forward medical care of war-injured. During the last 15 months the Norwegian Afghanistan Committe (NCA) has been the main responsible NGO for MMC, some other NGOs giving logistic support to the project.

In november 1990 the battle of Jalalabad is still the single military operation in Afghanistan contributing to the highest number of Afghan casualities. After 20 months of running, with 3300 war-casualities treated and evacuated by MMC, it is time to evaluate the MMC project, its results, efficiacy and its future organization (article 4 below). Fundamental for such an evaluation is a rough picture of the general state of affairs concerning management of war-injured in Afghanistan (article 2 and 4), compared to the modern principles for such medical care (article 3 below).

Dr. Husum who was asked by NCA to perform this evaluation, is a senior trauma surgeon with experience from other parts of Afghanistan, the Middle-East and South-East Asia particulary in advanced forward war-surgical service. He was also in charge of the NCA surgical team at MMC Jalalabad during may and april 1989.[1]

The actual study is based upon field work at Jalalabad, Khost and in Peshawar during october and november 1990.

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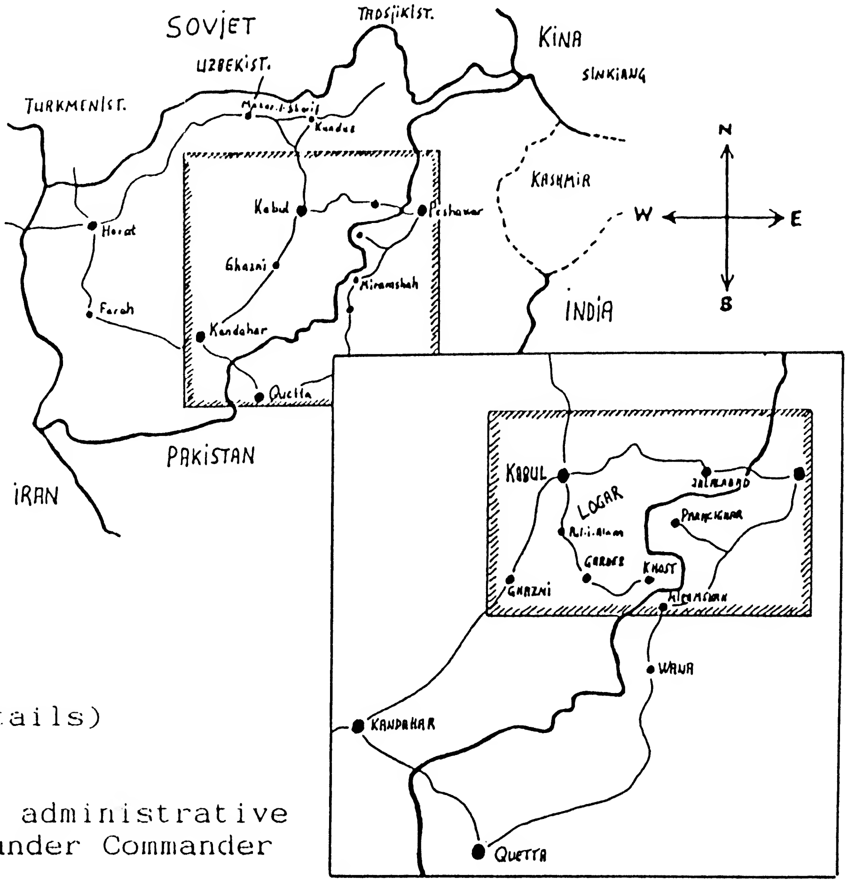
[1] See reports:
"A medical Evaluation of the Front Line Surgical Clinic "Mujahed Medical Center" at Jalalabad during May and June 1989". NCA 1989.
"Konsultent-rapport vedrørende MMC-klinikkene i Afghanistan og behovet for framtidig nødhjelpsarbeid". NCA 1989.

2. *The present Evacuation of War-injured in Eastern Afghanistan*

For years, the ICRC hospitals in Quetta and Peshawar has been the main centers responsible for definitive surgery and rehabilitation of war-casualities. After the Soviet withdrawal of troops from Afghanistan 1988, a third ICRC hospital is effective inside Kabul.

The forward medical care of the casualities and their **evacuation** up to definitive surgery, however, seem to have been beyond the scope and planning of most NGOs. Casualities from the Nothern regions (Herat, Mazar-e-Sharif, Hazarajat) has mainly been managed by small local medical clinics, many of them of dubuious medical standard (see article 4).
The relatively low number of casualities from within the area of Shura-e-Nizar[2] are given definitive management in local clinics of satisfactory medical standard inside that area. The Afghan war-casualities from the Southern and Eastern regions, that is the majority of Afghan casualities, are evacuated to Quetta or Peshawar directly or through ICRC-posts at Wana, Miramshah, Parachinar, Khyber and Newa.

This report will only discuss the evacuation of casualities up to Peshawar, the main center for definitive medical care.



(Map on p.6 with details)

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[2] Shura-e-Nizar: The administrative apparatus in North-East under Commander Masoud, Pansjir.

- the time factor

Up to 1988/89 evacuation of war-casualities was done by donkeys, trucks or some mujahedin "ambulance". Medical care for the injured before and during the transport were at best insufficient and the evacuation protracted; an evacuation from Ghazni to Quetta would seldom take less than 48 hrs, from Kabul (South) up to Peshawar approximately the same.

During 1989 and 1990 ICRC has put up posts with ICRC-ambulances and medical staff inside Afghanistan as marked in the map below. Also arab volunteers have established minor clinics with ambulance service in areas controlled by mujahedin. This, together with extended mujahedin control over main roads, has improved the facilities for transport:

1990 WAR-CASUALITIES, TRANSPORT TIME IN HOURS[3]

Ghazni - Quetta	12
Ghazni - Miramshah (summer)[4]	10
Ghazni - Peshawar (summer)	14
Gardez - Peshawar	10
Kabul-Jegdalek-Peshawar (summer)	20
Kabul-Ghazni-Quetta	18
Kabul-Ghazni-Peshawar (summer)	20
Jalalabad - Peshawar (Newa route)	10
Jalalabad (West/South)-Peshawar	6
Khost - Miramshah - Peshawar	6

The figures above estimate the pure transport time for war-casualities; to this figure should be added at least a mean of 4 hours delay from the time of injury up to the time when evacuation starts[5], and another 1-4 hours in hospital delay at second-line. A delay of more than 8 hours from the time of injury up to the time of primary surgery, will increase considerably the risk of primary complications (wound infections etc.), secondary complications (organ failure etc.)

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[3] Estimates based upon the military situation during the autumn 1990; local military operations or tribal conflicts may add considerably to the figures above. Evacuation through Logar, Paktia and the Eastern mountains is difficult during winter.

[4] Using the new road under construction east of Zurbmat.

[5] At Jalalabad and Khost the mean time from injury ut to primary surgery and further evacuation is appr. 4 hours. In combat fields with less ambulance service and poor field communications that time factor will increase.

and consequently rise the loss of limbs and lives considerably.

Even if the evacuation time in 1990 is far less than before, it is still far above the "8 hours limit" for the majority of those war-injured in Eastern Afghanistan, be they civilians or mujahedins. That is: The evacuation of war-injured from Eastern Afghanistan is not satisfactory - unless skilled forward medical care is given inside Afghanistan.

- the quality factor

The clinics of Shura-e-Nizar follow a modern concept of early forward primary management of war-injured. They also have a geographical localization making this well possible[6] . The same goes for MMC (article 5).

It is our experience from Jalalabad and Khost that the policy of the Arab run clinics vary, but generally they stick to the old-fashionned concept of rapid and poor primary medical care with hurried evacuation up to second line hospitals - whether the patient is stable for transport or not.

The general policy of ICRC inside Afghanistan is to concentrate upon simple forward medical care performed by Afghan paramedics and doctors at ICRC posts; under no circumstances ICRC plans to perform advanced surgical first aid or primary surgery exept at their three main hospitals.

ICRC at Kabul has a general and outspoken policy to evacuate war-injured from the outskirts of Kabul into the city for primary as well as definitive management. This is an attractive concept giving rapid primary care to the injured, and for some civilians it may be a realistic alternative as well; during a future intensified Battle of Kabul, however, one may doubt wether it is as attractive for injured mujahedins to enter the enemy camp. The alternative is evacuation through ICRC posts along the Ghazni route.

To our knowledge there are no clinics in Eastern Afghanistan other than those mentionned that have the facilities or staff required to perform qualified primary care of war-casualities.

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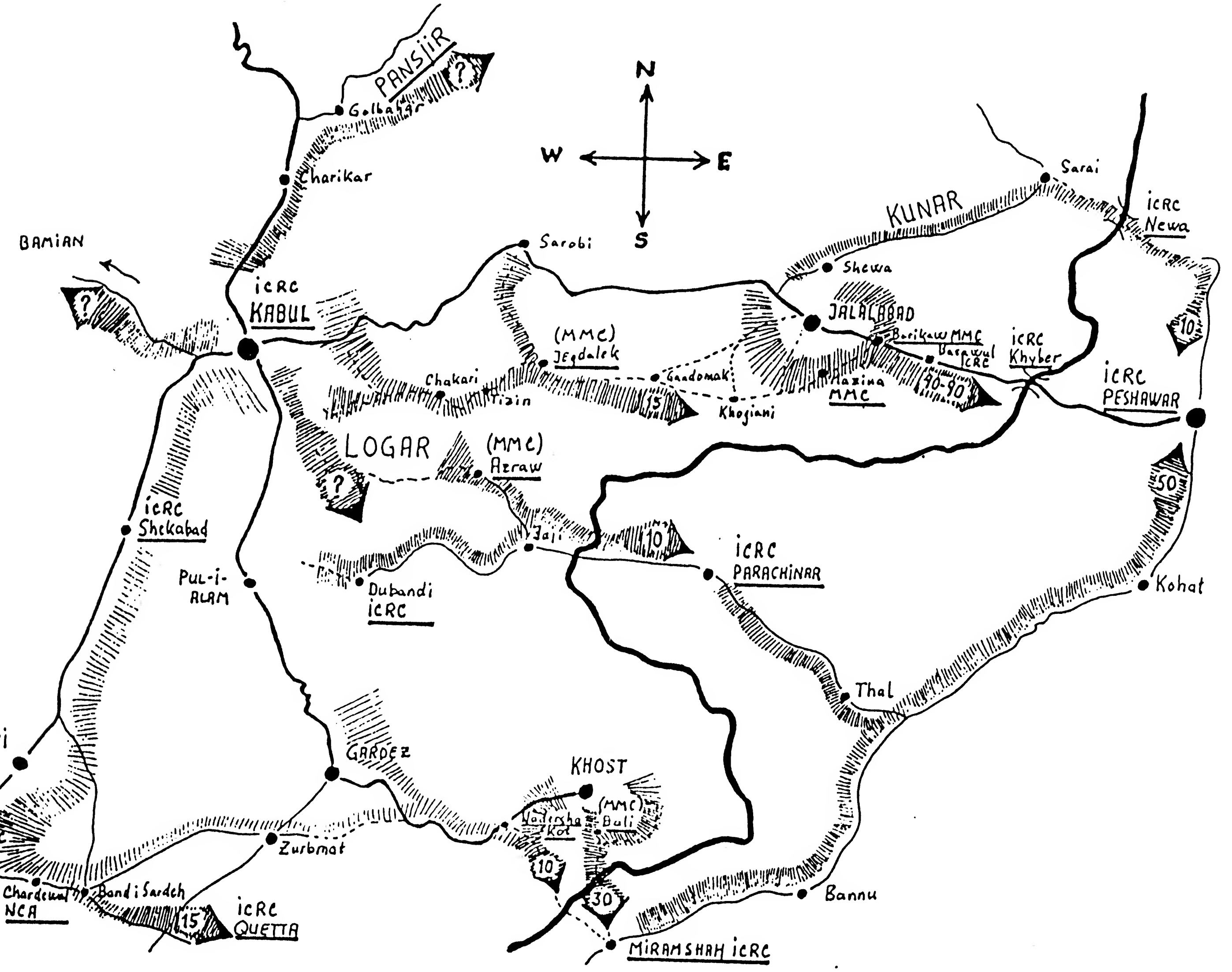
[6] Information from local senior staff and video documentation.

- the casuality load

The map shows the main evacuation routes (arrows) from the major combat fields in Eastern Afghanistan; that is, areas around Kabul, Ghazni, Gardez-Khost, the Kabul-Jalalabad highway and Jalalabad; the number within each arrow is the estimated mean of monthly casualities evacuated by that route during 1990.



MONTHLY MEAN CASUALITY NUMBERS AND EVACUATION ROUTES FROM THE MAIN FIGHTING GROUNDS IN EASTERN AFGHANISTAN DURING 1990.[7]

Jalalabad-Khyber-Peshawar	40-90
Jalalabad-Shewa-Newa-Peshawar	< 10
Khost (South/East)-Bali-Miramshah	15-50
Khost (East/North)-Thal	< 10
Khost (West/North)-Nadershah Kot - Miramshah	< 10
Gardez-Miramshah	insignific.
Ghazni-Chardewal	< 10
Kabul - ICRC Kabul	unknown[8]
Kabul (West)-Bamian clinics	unknown[9]
Kabul (North/East)-Pansjir clinics	unknown[10]
Kabul (West/South)-Ghazni-Quetta	15 [11]
Kabul (South) - Logar clinics	unknown[12]
Kabul (South) - Logar - Peshawar	10
Kabul (South/West)- Jegdalek - Mazina-Peshawar	15
Kabul/Jalalabad highway-Peshawar	< 10

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[7] Qualified estimates from comparative studies of several sources: MMC statistics; interwievs of ICRC staff and medical staff from Logar, Kunar and Khost clinics; Afghan Aid (ambulance reports); protocols of the Miramshah surgical hospital; NCA reports from Chardewal, Ghazni; mujahedin military sources; personal field studies at Jalalabad and Khost october 1990.

[8] Official ICRC figures are not available.

[9] Sources are uncertain, the number is probably <30 with considerable varations.

[10] Sources uncertain, the number is probably insignificant.

[11] The number will rise due to improved ICRC service along this route, and due to the new road west of Zurbmat.

[12] Logar is politically unstable, working conditions are difficult and the information uncertain. The number is probably insignificant.

The figures indicate that the majority of war-casualities in Eastern Afghanistan comes from the fighting grounds at Jalalabad and Khost, the two will account for appr. 1200 war-injured during 1990. The total number of casualities from around Kabul is less; that evacuation is, however, long and very demanding from a medical point of wiev. The main routes from Kabul seem to be by Jegdalek and Ghazni.

3. *The Echelon of Medical Care: General Principles for Management of War-injured.*

- **injuries and mortality by conventional warfare**

Since the Korean War, we have seen two main trends in the development of conventional weapons: The shrapnel velocities increase and the shrapnel design is developed so to create **high energy injuries**; and the cluster-type of weapons become more sofisticated, their use more wide-spread, also against civilian targets, thus creating an ever higher number of casualities with **multiple** injuries (Ref.III,IV). An all-over consequence is increasing "early mortality"[13], and increasing mortality due to early and late complications. Before the Viatnam War, war-casualities were generally managed at sophisticated second-line hospitals after a protracted evacuation from the combat field with correspondingly high mortality and high rate of complications. The development of the "new generation" of conventional weapons led to a revision of this medical concept:

- **the Echelon of Medical Care**

Qualified therapy is given in the combat field, at primary clinics close to the fighting field, during evacuation up to second-line hospitals - and at those hospitals. Such is the Echelon, as good as its weakest part. According to late medical experience, the emphasis should be put on the forward parts of the echelon to reduce early as well as late mortality (Ref.II-V).

- **forward ABC-therapy**

Therapy supportive of airways, breathing and blood circulation during the first hour/hours after injury will reduce the early mortality and the rate of complications (Ref.VII). Such therapy includes effective pain-killing and some emergency surgical procedures that can and should be performed even by skilled paramedics without sophisticated equipment.

- **forward primary surgery**

Due to the extensive tissue damage from high energy injuries, agressive surgery within 8 hours from the time of injury is the single most effective procedure to prevent serious wound

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[13] Death from injury during the first hour after injury.